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1   Synthetic Image Generation with a Lens and Aperture Camera Model   98%
Michael Potmesil , Indranil Chakravarty
ACM Transactions on Graphics (TOG) April 1982
Volume 1 Issue 2

2   A realistic camera model for computer graphics   97%
Craig Kolb , Don Mitchell , Pat Hanrahan
Proceedings of the 22nd annual conference on Computer graphics and interactive techniques September 1995

3   A lens and aperture camera model for synthetic image generation   96%
Michael Potmesil , Indranil Chakravarty
Proceedings of the 8th annual conference on Computer graphics and interactive techniques August 1981
This paper extends the traditional pin-hole camera projection geometry, used in computer graphics, to a more realistic camera model which approximates the effects of a lens and an aperture function of an actual camera. This model allows the generation of synthetic images which have a depth of field, can be focused on an arbitrary plane, and also permits selective modeling of certain optical characteristics of a lens. The model can be expanded to include motion blur and special effect filter ...

4   Computational Stereo   96%
Stephen T. Barnard , Martin A. Fischler
ACM Computing Surveys (CSUR) December 1982

Volume 14 Issue 4

5 Session G: Image-based techniques in computer graphics: Low-cost model reconstruction from 94%
image sequences
Caleb Lyness , Otto-Carl Marte , Bryan Wong , Patrick Marais
**Proceedings of the 1st international conference on Computer graphics, virtual reality
and visualisation** November 2001
A system that constructs a three dimensional model using two dimensional images taken from
multiple view-points is presented. This system improves upon existing work by including
several optimisations and extensions to cater for poor lighting. This system was developed
with the modeling of African artworks in mind. As these artifacts are often located in remote
areas, our system has to be robust enough to deal with less than ideal lighting conditions. The
images used as input are obtained by film ...

6 Reality portals   94%
Karl-Petter Åkesson , Kristian Simsarian
Proceedings of the ACM symposium on Virtual reality software and technology
December 1999
Through interactive augmented virtuality we provide the ability to interactively explore a
remote space inside a virtual environment. This paper presents a tool and technique that can be
used to create such virtual worlds that are augmented by video textures taken of real world
objects. The system constructs and updates, in near real-time, a representation of the
user-defined salient and relevant features of the real world. This technique has the advantage
of constructing a virtual world th ...

7 Constrained 3D navigation with 2D controllers   94%
Andrew J. Hanson , Eric A. Wernert
Proceedings of the conference on Visualization '97 October 1997

8 Through-the-lens camera control   93%
Michael Gleicher , Andrew Witkin
**ACM SIGGRAPH Computer Graphics , Proceedings of the 19th annual conference on
Computer graphics and interactive techniques** July 1992
Volume 26 Issue 2

9 Modeling motion blur in computer-generated images   91%
Michael Potmesil , Indranil Chakravarty
**Proceedings of the 10th annual conference on Computer graphics and interactive
techniques** July 1983
This paper describes a procedure for modeling motion blur in computer-generated images.
Motion blur in photography or cinematography is caused by the motion of objects during the
finite exposure time the camera shutter remains open to record the image on film. In computer
graphics, the simulation of motion blur is useful both in animated sequences where the
blurring tends to remove temporal aliasing effects and in static images where it portrays the
illusion of speed or movement among the o ...

10 Extending the working volume of projection-based mixed reality systems   88%

R. C. Splechtna , A. L. Fuhrmann

Proceedings of the workshop on Virtual environments 2003 May 2003

The working volume of a Mixed Reality (MR) system - which superimposes the real environment with computer-generated virtual content - strongly depends upon the output/display device used. Single screen projection systems like the Barco Baron Table or the FakeSpace ImmersaDesk M seem rather limited regarding their working volume when compared with the CAVE, which is the only projection-based MR installation providing a wide range of viewing directions. We show how the working volume of such proje ...

11 Measurement and color matching: Optimizing color matching in a lighting reproduction   87%
system for complex subject and illuminant spectra

A. Wenger , T. Hawkins , P. Debevec

Proceedings of the 13th Eurographics workshop on Rendering June 2003

This paper presents a technique for improving color matching results in an LED-based lighting reproduction system for complex light source spectra. In our technique, we use measurements of the spectral response curve of the camera system as well as one or more spectral reflectance measurements of the illuminated object to optimize the color matching. We demonstrate our technique using two LED-based light sources: an off-the-shelf 3-channel RGB LED light source and a custom-built 9-channel multi- ...

12 Animation from motion/video data: Human motion reconstruction from inter-frame feature   85%
correspondences of a single video stream using a motion library

Min Je Park , Min Gyu Choi , Sung Yong Shin

Proceedings of the 2002 ACM SIGGRAPH/Eurographics symposium on Computer animation July 2002

Videos taken from a single camera are a most common source of human motions. In this paper, we present a novel method to reconstruct the motion of a human-like figure from inter-frame feature correspondences of a single video stream. We exploit a motion library to resolve the depth ambiguity in recovering the 3D configurations from 2D features. Our reconstruction method takes three major steps: timewarping to align the reference motion with that in the video, reconstructing the joint orientation ...

13 A framework for assisted exploration with collaboration   85%

Eric A. Wernert , Andrew J. Hanson

Proceedings of the conference on Visualization '99: celebrating ten years October 1999

We approach the problem of exploring a virtual space by exploiting positional and camera-model constraints on navigation to provide extra assistance that focuses the user's explorational wanderings on the task objectives. Our specific design incorporates not only task-based constraints on the viewer's location, gaze, and viewing parameters, but also a personal “guide” that serves two important functions: keeping the user oriented in the navigation space, and “pointing&rdqu ...

14 Relief texture mapping   84%

Manuel M. Oliveira , Gary Bishop , David McAllister

Proceedings of the 27th annual conference on Computer graphics and interactive techniques July 2000

We present an extension to texture mapping that supports the representation of 3-D surface

details and view motion parallax. The results are correct for viewpoints that are static or moving, far away or nearby. Our approach is very simple: a relief texture (texture extended with an orthogonal displacement per texel) is mapped onto a polygon using a two-step process: First, it is converted into an ordinary texture using a surprisingly simple 1-D forward transform. The result ...

15 The HiBall Tracker: high-performance wide-area tracking for virtual and augmented   84%
environments
Greg Welch , Gary Bishop , Leandra Vicci , Stephen Brumback , Kurtis Keller , D'nardo Colucci
Proceedings of the ACM symposium on Virtual reality software and technology
December 1999
Our HiBall Tracking System generates over 2000 head-pose estimates per second with less than one millisecond of latency, and less than 0.5 millimeters and 0.02 degrees of position and orientation noise, everywhere in a 4.5 by 8.5 meter room. The system is remarkably responsive and robust, enabling VR applications and experiments that previously would have been difficult or even impossible.Previously we published descriptions of only the Kalman filter-based software approach that ...

16 Multiple-center-of-projection images   84%
Paul Rademacher , Gary Bishop
Proceedings of the 25th annual conference on Computer graphics and interactive techniques July 1998

17 Distributed ray tracing   82%
Robert L. Cook , Thomas Porter , Loren Carpenter
Proceedings of the 11th annual conference on Computer graphics and interactive techniques January 1984
Ray tracing is one of the most elegant techniques in computer graphics. Many phenomena that are difficult or impossible with other techniques are simple with ray tracing, including shadows, reflections, and refracted light. Ray directions, however, have been determined precisely, and this has limited the capabilities of ray tracing. By distributing the directions of the rays according to the analytic function they sample, ray tracing can incorporate fuzzy phenomena. This provides c ...

18 Session P8: isosurfaces and distance fields: Distance-field based skeletons for virtual   82%
navigation
Ming Wan , Frank Dachille , Arie Kaufman
Proceedings of the conference on Visualization 2001 October 2001
We present a generic method for rapid flight planning, virtual navigation and effective camera control in a volumetric environment. Directly derived from an accurate distance from boundary (DFB) field, our automatic path planning algorithm rapidly generates centered flight paths, a skeleton, in the navigable region of the virtual environment. Based on precomputed flight paths and the DFB field, our dual-mode physically based camera control model supports a smooth, safe, and sticking-free virtual ...

19 <u>LDI tree: a hierarchical representation for image-based rendering</u>   82%
Chun-Fa Chang , Gary Bishop , Anselmo Lastra
Proceedings of the 26th annual conference on Computer graphics and interactive techniques July 1999

20 <u>A model for simulating the photographic development process on digital images</u>   82%
Joe Geigel , F. Kenton Musgrave
Proceedings of the 24th annual conference on Computer graphics and interactive techniques August 1997

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